

WHAT IS CLAIMED IS:

1 1. An electronically controlled hydraulic brake system,
2 comprising:

3 a pressure increasing pump which increases a brake
4 hydraulic pressure in a brake hydraulic line;

5 a motor connected to the pressure increasing pump,
6 the motor being controlled on the basis of a motor drive
7 current command value to bring the brake hydraulic
8 pressure to a target brake hydraulic pressure;

9 a pressure detector which detects an actual
10 hydraulic pressure in the brake hydraulic line; and

11 a controller connected to the motor and the pressure
12 detector, the controller being arranged

13 to calculate an attainment brake hydraulic pressure,
14 which is a maximum brake hydraulic pressure attained when
15 the motor operates in response to a motor drive current
16 command value,

17 to obtain a linear compensation executed attainment
18 brake hydraulic pressure by linearly compensating the
19 attainment brake hydraulic pressure using the actual
20 brake hydraulic pressure,

21 to obtain a linear compensation executed motor drive
22 current command value by executing an inverse calculation
23 of the calculation for obtaining the linear compensation
24 executed attainment brake hydraulic pressure on the basis
25 of the linear compensation executed attainment brake
26 hydraulic pressure, and

27 to control the motor based on the linear
28 compensation executed motor drive current command value.

1 2. The electronically controlled hydraulic brake system
2 as claimed in claim 1, wherein the controller is further

3 arranged to set a virtual initial pressure estimated as
4 an initial value of the brake hydraulic pressure, and to
5 obtain the linear compensation executed attainment brake
6 hydraulic pressure by adding the actual brake hydraulic
7 pressure to a value obtained by subtracting the virtual
8 initial pressure from the attainment brake hydraulic
9 pressure.

1 3. The electronically controlled hydraulic brake system
2 as claimed in claim 2, wherein the controller is further
3 arranged to obtain an ideal flow rate of brake fluid by
4 the pressure increasing pump, and to obtain the linear
5 compensation executed attainment brake hydraulic pressure
6 from the ideal flow rate and the actual brake hydraulic
7 pressure.

1 4. The electronically controlled hydraulic brake system
2 as claimed in claim 3, wherein the controller is further
3 arranged to obtain the ideal flow rate using a flow rate
4 equation based on fluid dynamics and to obtain the linear
5 compensation executed attainment brake hydraulic pressure
6 by executing an inverse calculation of the flow rate
7 equation.

1 5. The electronically controlled hydraulic brake system
2 as claimed in claim 4, wherein a flow rate coefficient in
3 the flow rate equation is a fixed value.

1 6. The electronically controlled hydraulic brake system
2 as claimed in claim 4, wherein a flow rate coefficient in
3 the flow rate equation is a variable which is varied
4 according to an unattained pressure between a control

5 start brake hydraulic pressure and a control finish brake
6 hydraulic pressure.

1 7. The electronically controlled hydraulic brake system
2 as claimed in claim 1, further comprising a pressure
3 decreasing valve which is disposed in the brake hydraulic
4 line and is connected to the controller, the controller
5 controls the pressure decreasing valve to decrease the
6 actual brake hydraulic pressure.

1 8. The electronically controlled hydraulic brake system
2 as claimed in claim 7, wherein the controller controls
3 the motor when the actual brake hydraulic pressure is to
4 be increased, and controls the pressure decreasing valve
5 when the actual brake hydraulic pressure is to be
6 decreased.

1 9. An electronically controlled hydraulic brake system
2 which electronically controls a brake hydraulic pressure
3 in a brake hydraulic line for a vehicle by outputting a
4 motor drive current command value to a motor of a
5 pressure increasing pump for increasing the brake
6 hydraulic pressure, the electronically controlled
7 hydraulic brake system comprising:

8 a controller arranged to execute a linear
9 compensation of a maximum brake hydraulic pressure
10 attained when the motor operates in response to a motor
11 drive current command value, and to obtain the motor
12 drive current command value by executing an inverse
13 calculation of the calculation for obtaining the linear
14 compensation executed maximum brake hydraulic pressure.

1 10. A method of electronically controlling a brake
2 hydraulic pressure in a brake hydraulic line through a
3 control of a motor of a pressure increasing pump which
4 increases the brake hydraulic pressure, the method
5 comprising:

6 calculating an attainment brake hydraulic pressure,
7 which is a maximum brake hydraulic pressure attained when
8 a motor of a pressure increasing pump operates in
9 response to a motor drive current command value;

10 obtaining a linear compensation executed attainment
11 brake hydraulic pressure by linearly compensating the
12 attainment brake hydraulic pressure using an actually
13 detected brake hydraulic pressure in the brake hydraulic
14 line;

15 obtaining a linear compensation executed motor drive
16 current command value by executing an inverse calculation
17 of the calculation for obtaining the linear compensation
18 executed attainment brake hydraulic pressure on the basis
19 of the linear compensation executed attainment brake
20 hydraulic pressure, and

21 controlling the motor based on the linear
22 compensation executed motor drive current command value.

1 11. An electronically controlled hydraulic brake system
2 which controls a motor of a pressure increasing pump on
3 the basis of a motor drive current command value obtained
4 from a target brake hydraulic pressure to bring the brake
5 hydraulic pressure to the target brake hydraulic pressure,
6 the electronically controlled hydraulic brake system
7 comprising:

8 attainment brake hydraulic pressure calculating
9 means for calculating an attainment brake hydraulic

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10 pressure, which is a maximum brake hydraulic pressure
11 attained when the motor drive current command value is
12 applied to the motor;

13 attainment brake hydraulic pressure compensating
14 means for obtaining a linear compensation executed
15 attainment brake hydraulic pressure by linearly
16 compensating the attainment brake hydraulic pressure
17 using an actual brake hydraulic pressure;

18 linear compensation executed motor drive current
19 command value calculating means for obtaining a linear
20 compensation executed motor drive current command value
21 by executing an inverse calculation of the calculation
22 executed at the attainment brake hydraulic pressure
23 compensating means on the basis of the linear
24 compensation executed attainment brake hydraulic
25 pressure; and

26 control means for controlling the motor based on the
27 linear compensation executed motor drive current command
28 value.